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MESSAGE: U.S. Serial No. 10/631,797

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Confirmation No.: 1995

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Serial No.: 10/631,797

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Filed: July 31, 2003

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For: SUBSTRATE TREATMENT APPARATUS AND SUBSTRATE TREATMENT
METHOD

VIA FACSIMILE 571 273 8300

Commissioner for Patents

P.O. Box 1450

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REQUEST FOR TELEPHONE INTERVIEW

Sir:

The undersigned attorney for the applicant respectfully requests a telephone interview for the following reasons:

Claim 1 of the present invention clarifies that the oxidation liquid supply mechanism and physical cleaning mechanism individually have nozzles. That is, an oxidation liquid supply mechanism has an oxidation liquid nozzle, and the physical mechanism has a dual fluid spray nozzle. The cleaning controller controls the oxidation liquid supply mechanism and the physical cleaning mechanism such that the jet flow of droplets are supplied from the dual fluid spray nozzle onto the substrate surface while the oxidation liquid is supplied from the oxidation liquid nozzle onto the substrate surface. That is, the jet flow of droplets and the oxidation liquid are supplied from different nozzles onto the substrate surface.

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Okuda et al. teaches that an oxidation liquid is supplied with the dual fluid spray nozzle. However, Okuda et al. fails to teach an arrangement in which a jet flow of droplets of treatment liquid is supplied from one nozzle onto the substrate surface while the oxidation liquid is supplied from another nozzle onto the substrate surface. Similarly, the device shown in Sato et al. includes a gas discharging nozzle 100 and a liquid discharging nozzle 200. However, there is no disclosure or even a suggestion Sato that one of these two nozzles is used to supply a jet flow of droplets of treatment liquid onto the substrate surface, while the other nozzle is used to supply the oxidation liquid. In view of this, claim 1 and its dependents are distinguishable from the cited arts.

As to current claim 8, we would like to clarify that the oxidation liquid is supplied from an oxidation liquid nozzle, and that the physical cleaning step includes a step of supplying a jet flow of droplets of a treatment liquid from a dual fluid spray nozzle onto the substrate surface. Our proposals on amendments to claim 8 are indicated below for your reference.

Claim 8 (Currently Amended)

A substrate treatment method for removing an unnecessary substance from a surface of a substrate, the substrate treatment method comprising the steps of:

supplying an oxidation liquid from an oxidation liquid nozzle, the oxidation liquid having an oxidative effect to the substrate surface for oxidizing metal impurities on the substrate surface;

physically cleaning the substrate surface; and

supplying an etching liquid having an etching effect to the substrate surface for etching the substrate surface after the oxidation step and the physical cleaning step,

wherein the physical cleaning step includes ~~at least one of the following steps (a) and (b):~~

~~(a) a step of supplying a jet flow of droplets of a treatment liquid to the substrate surface from a dual fluid spray nozzle that blows a gas on the treatment liquid ejected toward the substrate surface to generate the jet flow of droplets,~~

~~(b) a step of imparting ultrasonic vibration to a treatment liquid supplied or to be supplied to the substrate surface;~~

wherein the physical cleaning step is carried out at least partly simultaneously with the oxidation step.

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office, on June 5, 2007:

Respectfully submitted,

Anna Vishev

Name of applicant, assignee or
Registered Representative

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Signature

June 5, 2007

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